

Influenza Monthly Epidemiology Report, NSW

December 2014 (including a summary for the year 2014)

This report describes the surveillance for influenza and other respiratory pathogens, undertaken by NSW Health to date. This includes data from a range of surveillance systems.

For weekly communicable disease surveillance updates refer to the Communicable Disease Weekly Report at <http://www.health.nsw.gov.au/publichealth/infectious/index.asp>.

1. Summary

In December 2014:

- The rate of influenza like illness (ILI) presentations to selected emergency departments was low and was within the normal range expected for December.
- 83 cases with laboratory-confirmed influenza A (predominantly H3N2) and 67 cases with influenza B were identified by sentinel laboratories.
- Rhinovirus was the most common respiratory virus identified by sentinel laboratories.

From 1 January to 28 December 2014:

- ILI presentations to selected emergency departments remained low overall, but increased significantly during the period July to October. During this period presentations were significantly above the normal expected range.
- 15,672 cases of laboratory confirmed influenza A were reported in NSW, of which 3,352 (21%) were H3 and 1,355 (7%) were pH1N1. The remaining 10, 965 cases were untyped.
- 2,553 cases of influenza B were reported in NSW.
- At least 98 patients with confirmed influenza were admitted to intensive care units
- 27 cases of influenza with severe complications in children less than 15 years of age in NSW were reported to the Australian Paediatric Surveillance Unit (APSU), including one death.
- 38 deaths in association with influenza in 2014 were reported.
- 120 influenza outbreaks occurred in residential care facilities.

2. Emergency Department (ED) influenza-like illness activity

Data from 59 NSW emergency departments are included. Comparisons are made with data for the preceding 4-5 years. Recent counts are subject to change.

Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health.

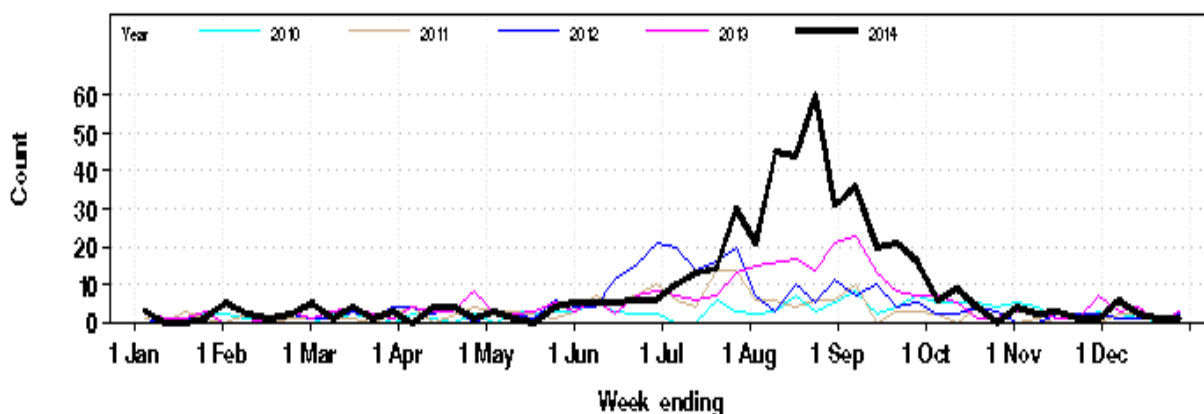
ED Presentations for influenza-like illness:

Monitoring influenza-like illness (ILI) presentations in Emergency Departments provides important information on the burden that influenza and other similar respiratory infections places on hospitals during the influenza season. The changes in ILI presentations to EDs can also be used to predict the start, peak and end of the influenza season in NSW.

The PHREDSS surveillance system uses a statistic called the 'index of increase' to indicate when presentations are increasing at a statistically significant rate. It accumulates the difference between the previous day's count of presentations and the average for that weekday over the previous 12 months. An index of increase value of 15 is considered an important signal for the start of the influenza season in NSW as it suggests influenza is circulating widely in the community.

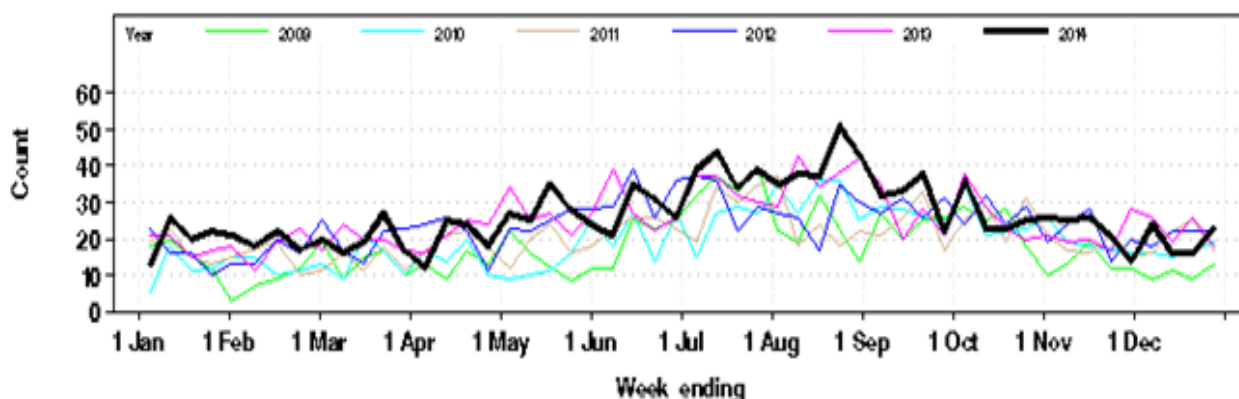
- In December 2014 there were 64 ED presentations with influenza-like illness (rate 0.2 per 1,000 presentations) consistent with the historical average and similar to the previous month (Figure 1).
- For 2014, the index of increase crossed the threshold level of 15 around 1 July 2014 – indicating the start of the influenza season – and peaked at 50.7 on 13 August.
- Overall, ILI presentations to EDs were much higher than for the four previous years (Figure 1), but were still below the levels seen during the 2009 influenza pandemic (2009 data not shown).

Figure 1: Total weekly counts of Emergency Department visits for influenza-like illness, from January – December 2014 (black line), compared with each of the 4 previous years (coloured lines), for 59 NSW hospitals.*



- Admissions from ED to critical care units for influenza-like illness and pneumonia were steady for all of December, and were within the usual range for this time of year (Figure 2).
- For 2014, critical care admissions from ED peaked in late August, similar to the peak seen in ILI presentations to ED (Figure 2).
- Overall, critical care admissions from ED were slightly higher than previous years (Figure 2).

Figure 2: Total weekly counts of Emergency Department visits for pneumonia and influenza-like illness, which were subsequently admitted to a critical care ward, from January – December 2014 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.



3. Community Illness Surveillance

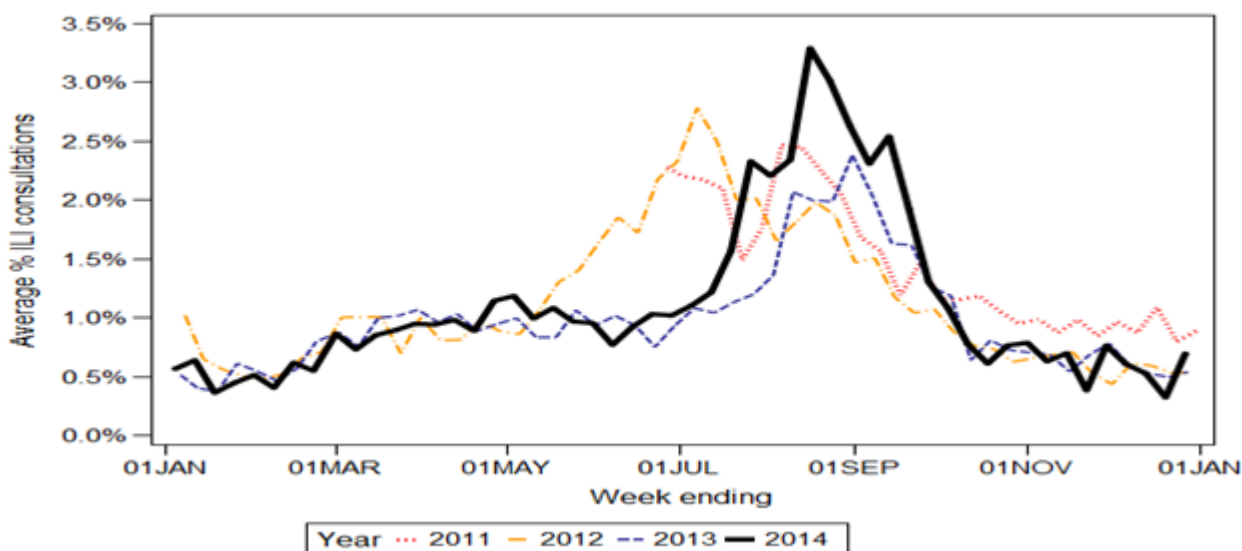
Electronic General Practice Surveillance (eGPS)

eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator of influenza activity. Consultations for ILI are identified each week by an automatic search of electronic records for validated combinations of ILI terms rather than diagnosis codes.

Data generated from eGPS should be interpreted with caution as it is not representative of all practices within the participating LHDs or across NSW.

- For 2014, weekly reports were received on average from 14 sentinel practices.
- The highest weekly ILI activity reported by GP's was during the month of August (week ending 17 Aug) where the average rate for patient consultations with ILI was 3.4% (range 0.6 – 11%). This is much higher than previous years (Figure 4).

Figure 4. Average rate of influenza-like-presentations to sentinel general practices, by week of consultation, 2011-2014.



Note: The number of practices reporting may vary from week to week. Data available from Week 29, 2011.

The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the RACGP and University of Adelaide that has collected de-identified information on influenza like illness and other conditions seen in general practice since 1991.

GP's participating in the program report on the proportion of patients presenting with an ILI. The number of GP's participating on a weekly basis may vary.

- For 2014, an average of 30 NSW GP practices provided activity reports each week.
- The consultation rate peaked at 3.4 per cent during week 35 (week ending 31 August); this was higher than previous years.

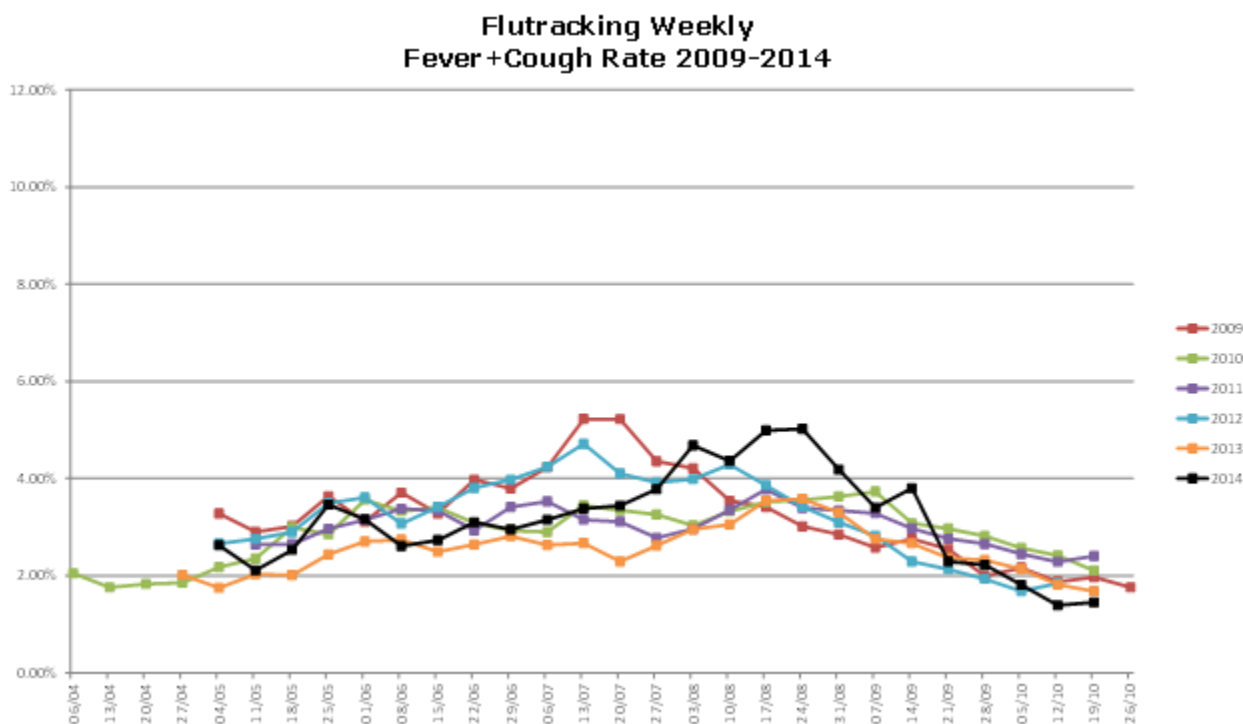
For further information please see the [ASPREN](#) website.

FluTracking.net

FluTracking.net is an online health surveillance system to detect epidemics of influenza. It involves participants from around Australia completing a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

- For 2014, the peak and magnitude of ILI symptom reporting in NSW was similar to that seen during the 2009 influenza pandemic (Figure 5).
- The highest weekly ILI symptom activity reported from FluTracking participants in NSW was for the week ending 24 of August when reports were received for 5513 individuals. The number of respondents reporting fever and cough for this week was 5.0%, well above the usual range for this time of year and similar to the peak activity seen during 2009 (Figure 5).
- Overall, 3.4% of respondents reported fever, cough and absence from normal duties.

Figure 5: FluTracking – Weekly influenza like illness reporting rate, NSW, 2009 – 2014.



For further information please see the [FluTracking](#) website.

4. Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year. Summary information is provided here with more detailed information provided at the end of the report (see [Table 1](#)).

In December 2014:

- 5,213 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 83 specimens tested positive for influenza A – 29 of these tested positive for A(H3N2), 1 tested positive for influenza A(pH1N1) and 52 were not typed further ([Table 1](#), Figure 4).
- 67 cases of influenza B were reported ([Table 1](#), Figure 4).

During December, laboratory testing suggested influenza activity had increased slightly although it remained at low levels. Other respiratory viruses circulated at higher levels than influenza, including rhinovirus and parainfluenza.

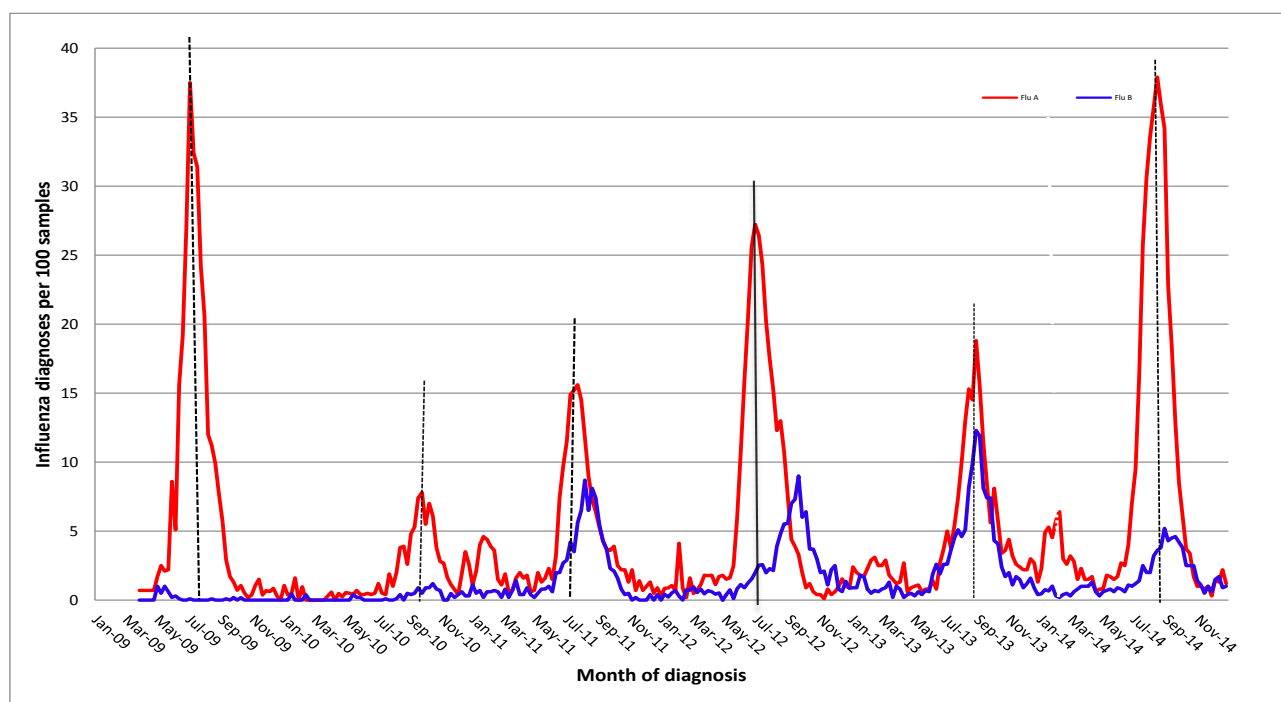
From 1 January to 28 December 2014:

- 107,385 tests for respiratory viruses were performed at sentinel NSW laboratories ([Table 1](#)).
- 15,672 tests were positive for influenza A ([Table 1](#), Figure 4).
 - 1,355 were pH1N1 (of these, 102 were characterised as A/California/7/2009-like).
 - 3,352 were H3N2 (of these, 222 were characterised as A/Victoria/361/2011-like).
 - 10,970 influenza A samples were not typed further.
- 2,553 tests were positive for influenza B ([Table 1](#), Figure 4).
 - 43 influenza B samples were sent for further characterisation, with 41 identified as B/Massachusetts/2/2012-like and 2 identified as B/Brisbane/60/2008-like.
- Sentinel laboratories reported that at least 98 of the patients with confirmed influenza were known to have been admitted to an intensive care units(ICU)
- Influenza was confirmed as the cause of 120 respiratory outbreaks in institutions reported across NSW affecting aged care or residential intellectual disability care (111), and hospital wards (9).

Sentinel laboratory data suggests that in 2014, overall influenza A was markedly elevated, and similar to that seen during the 2009 influenza pandemic. Laboratory detections for influenza A rose markedly in early July, similar to the rise in Emergency Department ILI activity, and remained elevated for at least 17 weeks (Figure 4, red line). Influenza A activity was particularly high during an 8-week period around a peak in mid-August, a peak as high as the peak of influenza A activity recorded during the 2009 pandemic.

Overall Influenza B activity was reduced in 2014 compared to recent years, with peak activity in late August (Figure 4, blue line).

Figure 4: Percent of laboratory tests positive for influenza A and influenza B, 1 January 2009 – 28 December 2014, New South Wales.



Notes on sentinel laboratory surveillance:

- Data is provided by participating sentinel laboratories on a weekly basis and excludes serology.
- Participating sentinel laboratories include the following: South Eastern Area Laboratory Services, Institute of Clinical Pathology and Medical Research, The Children's Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Nepean Hospital Pathology, Douglas Hanley Moir Pathology, VDRLab, Lavery Pathology, SydPath (St Vincent's) Pathology, and Medlab.

5. APSU Paediatric Surveillance of influenza with severe complications

The Australian Paediatric Surveillance Unit (APSU) is a national research resource, established in 1993 to facilitate active surveillance of uncommon childhood diseases, rare serious complications of common diseases or rare adverse effects of treatment. Conditions are chosen for their public health importance and impact on health resources.

The APSU is based at The Children's Hospital at Westmead. Contributors to the APSU are clinicians working in paediatrics and child health in Australia.

Each month all clinicians participating in APSU surveillance are sent a report card listing up to 17 different conditions under surveillance and asked to return the report card indicating whether they have seen a case or not. All positive reports of cases generate a brief questionnaire requesting de-identified information about the child's demographics, details of diagnosis, management and short-term outcome from the clinician. (For more details on APSU methods please see the APSU website: www.apsu.org.au).

Since 2009, surveillance for severe complications from influenza has been conducted by the APSU from July to September. For this reporting period in 2014 there were 27 cases of influenza with severe complications in children less than 15 years of age in NSW reported to the APSU.

- All cases involved infections with influenza A strains. Sixteen (59%) cases were female. The median age of cases was 3.5 years (range 0.4-15.0 years).
- Twelve of the cases were known to have not been vaccinated for influenza while the influenza vaccination status of the other 15 cases was unknown.
- Eight of the cases had an underlying chronic medical condition.
- Five cases required mechanical ventilation during their hospitalisation.

The most common influenza complications were pneumonia with oxygen requirement (12 cases), and seizures (10 cases). There was one fatal case; a three year old child with underlying co-morbidities. The 26 other cases were discharged after hospital stays ranging from 1 to 14 days.

6. Influenza Complications Alert Network (FluCAN)

In 2009, [A Rapid Alert System for Severe Respiratory Illness: The FluCAN Surveillance system](#) was created with the involvement and support of the Thoracic Society of Australia and New Zealand and funding from the [NHMRC](#).

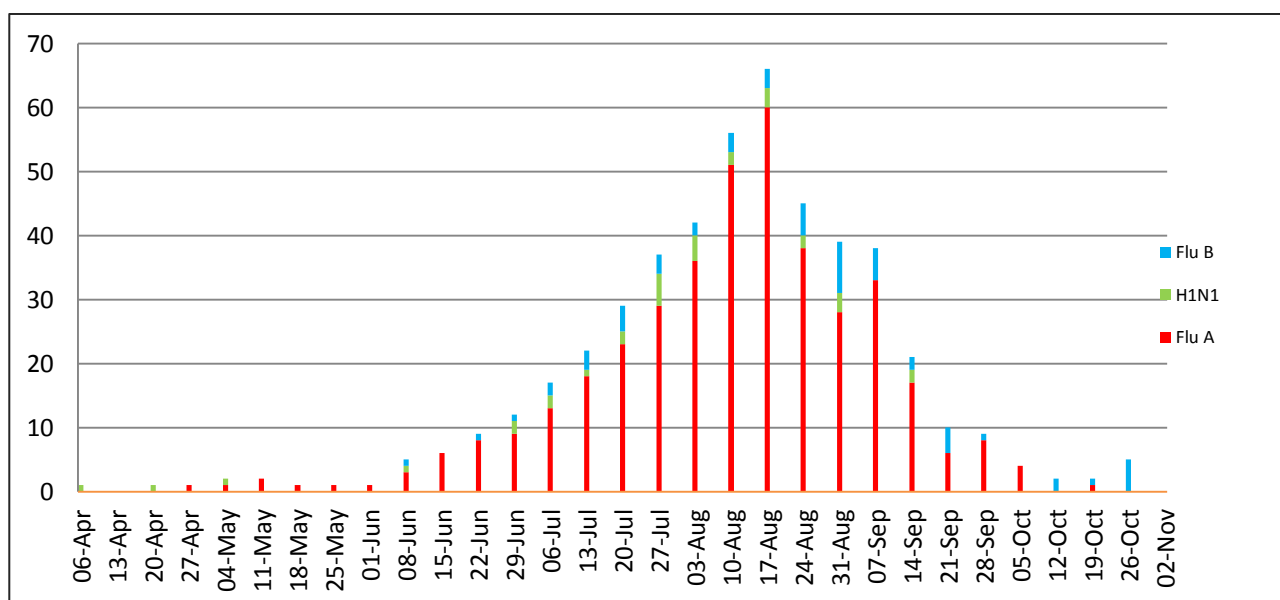
The aim of FluCAN was to establish and maintain a real-time sentinel hospital surveillance system for acute respiratory disease requiring hospitalisation, which could provide a reliable and timely source of information that could be used to inform public health policy. Since 2010, this FluCAN surveillance has been supported by the Department of Health, with data management provided by

Monash University, Melbourne. In NSW, the FluCAN includes two sentinel monitoring sites for influenza hospitalisations: John Hunter Hospital and Westmead Hospital.

From 3 April to 31 October, FluCAN reported 486 hospital admissions with confirmed influenza from the two NSW sites, and with the following characteristics:

- 432 (89%) were admitted to either a general or respiratory ward, 26 (5%) were admitted directly to a high dependency unit, and 28 (6%) were admitted to an intensive care unit.
- 430 (88%) of cases were influenza A positive: 32 (7%) had influenza A(pH1N1), 398 (93%) were negative for influenza A(pH1N1) and were presumed to be H3N2.
- 56 (12%) of cases were influenza B.
- 40 of the 54 cases (74%) admitted to HDU or ICU were positive for influenza A, 9 were influenza A(pH1N1) and 5 influenza B.
- 152 (31%) of cases were children <15 years, 77 (16%) people were aged 15 to 49 years and 257 (53%) were aged 50 years and older.
- 24 (5%) of cases were pregnant women.

Figure 5: FluCAN – Number of confirmed influenza hospital admissions in NSW, April – October 2014



7. Influenza-related mortality

In previous years we have routinely reviewed deaths registration data for deaths attributed to pneumonia or influenza. Unfortunately death data from the NSW Register of Births, Deaths and Marriages (RBDM) is currently unavailable. An update will be provided when the RBDM data become available.

Information on influenza-related deaths obtained from laboratory and other informal reporting sources in 2014 indicated that there were at least 38 fatal cases in NSW with laboratory-confirmed influenza infections. Six of these were in children aged less than 15 years, eight in people aged 30 to 50 years, and 24 in people aged more than 50 years. It is unclear to what extent the influenza infection contributed to their death.

8. NSW Population Health Survey Influenza vaccination rates

The New South Wales Population Health Survey (NSWPHS) is an ongoing telephone survey of state residents that is one of the main mechanisms through which NSW Health monitors population health and reports on performance indicators. Its objectives are to:

- monitor changes over time in self-reported health behaviours, health status, health service use, satisfaction with health services, and other factors that influence health;
- support the planning, implementation, and evaluation of health services;
- collect health information that is not available from other sources;
- respond quickly to emerging needs for health information
- promote research.

For 2014, results from the NSWPHS questions related to influenza vaccination are presented in [Table 2](#). While the influenza vaccine uptake estimates generally have wide confidence intervals, the survey data indicated that influenza vaccine uptake in 2014:

- remained steady overall at approximately 32 percent of the population
- continued to be highest in the 65 years and older age group (approximately 70 percent)
- slightly higher trend in the 0 to 15 years age group
- trended higher in the 16-44 year age group overall and for women alone, possibly as a result of recent efforts to promote the national recommendation for pregnant women to be vaccinated.

9. National and International Influenza Surveillance

National Influenza Surveillance

Nationally the 2014 influenza season appears to have peaked in mid-August. Overall influenza activity remained elevated for approximately 12 weeks. Nationally, the timing of the seasonal peak was similar to 2013 and 2011.

- Over the 2013-14 inter-seasonal period, higher than usual numbers of influenza notifications were reported from most jurisdictions. Rates of inter-seasonal influenza have been generally increasing since the 2009 influenza pandemic.
- National laboratory-confirmed notification data for 2014 showed a sharp increase in reporting from mid-July, a peak in mid-August followed by a rapid decline to inter-seasonal levels in early October. South Australia and Victoria had sustained peak activity for up to five weeks.
- While the majority of notifications this year were from New South Wales (31%) and Queensland (27%), notification rates per population were highest in South Australia.
- Nationally, influenza A viruses predominated but the distribution of influenza A subtypes varied between jurisdictions and as the season progressed.
- The influenza A(H1N1)pdm09 strain predominated in most jurisdictions with the exception of New South Wales and the ACT where influenza A(H3N2) was more common.
- Increased reporting of the influenza A(H3N2) strain was noted late in the season in Queensland, Western Australia, the Northern Territory and Tasmania.
- In recent weeks, the typical, late season increase in influenza B infections has also been noted.
- Modelling has estimated that there have been over 8,500 adult, influenza-associated hospitalisations since April 2014, mainly in the very young and the elderly.

For more information on national influenza activity see the Australian Influenza Surveillance Reports: <http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-ozflu-2014.htm>

Global Influenza Update

Seasonal influenza activity continued to increase in the northern hemisphere with influenza A(H3N2) viruses predominating so far. Characterization of most recent A(H3N2) viruses has indicated differences from the A(H3N2) virus used in the influenza vaccines for the northern hemisphere 2014-2015. [WHO reports](#) for the fortnight up to 23 December indicate that:

- In North America, the levels of influenza activity continued to increase and had passed the seasonal thresholds. Influenza A(H3N2) virus predominated.
- In Europe, overall influenza activity mainly associated with A(H3N2) virus continued to increase, but remained at low levels.
- In eastern Asia, influenza activity continued to increase with influenza A(H3N2) virus predominating.

Avian influenza A(H5N1) in 2014

On 6 January the [World Health Organization \(WHO\)](#) reported that they had received reports of 29 confirmed human cases of avian influenza A(H5N1) infection with onset of illness in 2014, including 15 deaths. The confirmed A(H5N1) cases in 2014 were reported from four countries: Cambodia (9), China (2), Egypt (14), Indonesia (2), and Viet Nam (2). Most recent cases have been reported from Egypt.

Avian influenza A(H7N9) in China

According to the most recent update on avian influenza A(H7N9) available on the Hong Kong Centre for Health Protection [website](#), China reported 318 influenza A(H7N9) cases in 2014. Most of the cases were reported earlier in the year. There remains no evidence of sustained human-to-human transmission and most cases are linked to exposure to poultry, particularly in live poultry markets. The disease is mild in poultry so outbreaks remain difficult to detect.

Avian influenza A(H5N6) in China

China recently reported a human infection with an influenza A(H5N6) virus in a 58-year-old man from Guangdong province who became unwell on 4 December 2014. The patient had a history of exposure to live poultry. No further cases among contacts were reported.

This is the second time a human infection with influenza A(H5N6) has been detected. The first case was in April 2014 in a patient from Sichuan province, China, who also likely acquired the infection from exposure to infected poultry. Outbreaks of illness and deaths in poultry due to highly pathogenic A(H5N6) avian influenza viruses have been reported in 2014 from China, Lao People's Democratic Republic and Viet Nam.

10. Recommended composition of 2014 Australian influenza vaccines

A WHO consultation held in September 2014 recommended that trivalent vaccines for use in the 2015 influenza season (southern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Switzerland/9715293/2013 (H3N2)-like virus ^a;
- a B/Phuket/3073/2013-like virus.

^a A/South Australia/55/2014, A/Norway/466/2014 and A/Stockholm/6/2014 are A/Switzerland/9715293/2013-like viruses.

It is also recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

These changed vaccine recommendations from the previous year reflect observed antigenic drift in circulating A(H3N2) and B/Yamagata lineage viruses. For more information see:
http://www.who.int/influenza/vaccines/virus/recommendations/2015_south/en/

Table 1: Summary of testing for respiratory viruses and influenza at NSW public hospital laboratories, 1 January to 28 December 2014.

Month ending	Total Tests	TEST RESULTS															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV
		Total		H3N2 **		H1N1 pdm09		A (Not typed)		Total							
Total	(%)	Total	(%A) **	Total	(%A)	Total	(%A)	Total	(%)								
02/02/2014*	3541	163	(4.6%)	36	(22.1%)	31	(19.0%)	96	(58.9%)	23	(0.6%)	98	123	90	339	12	32
02/03/2014	3413	127	(3.7%)	19	(15.0%)	39	(30.7%)	69	(54.3%)	12	(0.4%)	56	79	149	362	7	23
30/03/2014	4843	95	(2.0%)	11	(11.6%)	36	(37.9%)	49	(51.6%)	41	(0.8%)	97	135	387	549	22	37
27/04/2014	5360	64	(1.2%)	3	(4.7%)	15	(23.4%)	47	(73.4%)	45	(0.8%)	103	177	753	535	30	50
01/06/2014*	7383	112	(1.5%)	8	(7.1%)	17	(15.2%)	87	(77.7%)	48	(0.7%)	115	159	1011	659	21	83
29/06/2014	6572	280	(4.3%)	90	(32.1%)	34	(12.1%)	156	(55.7%)	58	(0.9%)	102	88	792	560	39	92
03/08/2014*	13818	3497	(25.3%)	959	(27.4%)	327	(9.4%)	2215	(63.3%)	264	(1.9%)	216	143	852	926	22	245
31/08/2014	22209	7982	(35.9%)	1642	(20.6%)	661	(8.3%)	5679	(71.1%)	893	(4.0%)	275	155	416	990	41	319
28/09/2014	17167	2831	(16.5%)	475	(16.8%)	173	(6.1%)	2183	(77.1%)	754	(4.4%)	371	227	264	1210	76	369
02/11/2014*	11047	382	(3.5%)	55	(14.4%)	19	(5.0%)	308	(80.6%)	292	(2.6%)	349	257	171	1179	66	296
30/11/2014	6819	56	(0.8%)	25	(44.6%)	2	(3.6%)	29	(51.8%)	56	(0.8%)	214	192	90	899	31	92
28/12/2014	5213	83	(1.6%)	29	(34.9%)	1	(1.2%)	52	(62.7%)	67	(1.3%)	142	161	89	633	24	60
Week ending																	
07/12/2014	1373	21	(1.5%)	12	(57.1%)	0	(0.0%)	9	(42.9%)	21	(1.5%)	42	38	23	164	8	16
14/12/2014	1413	19	(1.3%)	5	(26.3%)	1	(5.3%)	13	(68.4%)	24	(1.7%)	36	38	28	145	5	16
21/12/2014	1397	31	(2.2%)	11	(35.5%)	0	(0.0%)	20	(64.5%)	12	(0.9%)	41	48	16	197	6	18
28/12/2014	1030	12	(1.2%)	1	(8.3%)	0	(0.0%)	10	(83.3%)	10	(1.0%)	23	37	22	127	5	10

* Equals a five week period

** Subset of influenza A cases

Notes

- Data is provided by laboratories on a weekly basis and excludes point of care tests.
- Influenza laboratory diagnoses using virology are reported by South Eastern Area Laboratory Services, The Children's Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Pathology West – Westmead & Pathology West, Nepean, Douglas Hanley Moir Pathology, VDRLab, Lavery Pathology, SydPath (St Vincent's) Pathology, and Medlab.

Table 2: NSW Population Health Survey – Respondents reporting vaccination against influenza in the past 12 months, by age, survey month and year, all persons, and females 16 – 44 years, NSW, April 2012 – Sep 2014.

Age (years)	2012	2012	2012	2013	2013	2013	2014	2014	2014
	Apr-May N=1047 % (95% CI)	Jun-Jul N=1815 % (95% CI)	Aug-Sep N=2271 % (95% CI)	Apr-May N=1804 % (95% CI)	Jun-Jul N=1356 % (95% CI)	Aug-Sep N=1611 % (95% CI)	Apr-May N=2045 % (95% CI)	Jun-Jul N=2025 % (95% CI)	Aug-Sep N=1826 % (95% CI)
0 - 15	10 (5 - 16)	13 (8 - 17)	10 (7 - 14)	7 (3 - 10)	8 (4 - 12)	9 (5 - 13)	10 (6 - 14)	11 (6 - 15)	9 (5 - 14)
16 - 44, all	21 (15 - 27)	21 (16 - 25)	22 (18 - 26)	16 (11 - 20)	22 (17 - 28)	19 (14 - 24)	20 (15 - 25)	22 (17 - 27)	24 (18 - 29)
16 - 44, female	24 (16 - 32)	19 (13 - 25)	26 (20 - 31)	16 (11 - 22)	21 (14 - 28)	19 (12 - 25)	23 (16 - 29)	26 (20 - 33)	29 (21 - 36)
45 - 64	34 (29 - 39)	33 (30 - 37)	36 (32 - 39)	31 (27 - 34)	37 (32 - 41)	41 (37 - 45)	30 (26 - 33)	37 (33 - 40)	40 (36 - 44)
65 & over	67 (62 - 72)	72 (69 - 76)	72 (69 - 76)	64 (60 - 67)	72 (68 - 76)	73 (70 - 77)	62 (59 - 65)	73 (70 - 76)	70 (66 - 73)
Total*	29 (25 - 33)	30 (27 - 33)	31 (28 - 33)	25 (22 - 27)	31 (27 - 34)	31 (28 - 33)	27 (24 - 30)	31 (29 - 34)	32 (29 - 35)

*Age-standardised to the NSW population in each year.

Source: New South Wales Population Health Survey. Centre for Epidemiology and Evidence. NSW Ministry of Health

Notes

- For the complete analysis, estimates were based on 33826 interviews conducted from July 2009 to September 2014 for April through to September.
- Estimates do not include respondents with 'Refused' response, 'Don't know' response or were 'Not asked' (1.37 % combined). Estimates for the current year do not include interviews conducted in languages other than English.
- The question used to define the indicator was 'Were you vaccinated or immunised against flu in the last 12 months?'. From 2013, an additional question determined if the vaccination was this year or last year. Therefore, some vaccinations reported prior to 2013 may have occurred in the year previous to the interview.
- Estimates in the 'Total' category were age-standardised to the NSW population.
- From February 2011, the survey sample was chosen by selecting persons from households located in Local Health Districts. Previously, sampling was from Area Health Service regions.

For further information on the NSW Population Health Survey and its methods see: <http://www.health.nsw.gov.au/publichealth/surveys/phs.asp> and http://www.health.nsw.gov.au/resources/publichealth/surveys/health_survey_method.asp